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### AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1. (Currently Amended). An apparatus comprising:  
a baseband module adapted to filter a ~~modulated~~ received signal of a wireless communication system by programming an impulse response of a filter to a programmable convolver based on wireless communication system type information included in the received signal.
2. (Original). The apparatus of claim 1, wherein the baseband module further comprises:  
a memory to store the impulse response of the filter; and  
a digital to analog converter (DAC) to provide a time phase of a stored impulse response of the filter to the programmable convolver.
3. (Original). The apparatus of claim 2, wherein the baseband module further comprises:  
an automatic gain control to control an output signal level of the programmable convolver.
4. (Currently Amended). The apparatus of claim 3, wherein the received signal includes a modulated signal and wherein the baseband module ~~further~~ comprises:  
a filter operably coupled to an input of the programmable convolver to filter the modulated signal, wherein an impulse response of the filter is programmed according to modulated signal characteristics.
5. (Currently Amended). The apparatus of claim ~~[[4]]~~ 2, wherein a resolution of the ~~DAC~~ digital to analog converter and a sampling rate of the ~~DAC~~ digital to analog converter are set

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according to the modulated signal characteristics.

6. (Original). The apparatus of claim 4, wherein a length of the impulse response is set according to the modulated signal characteristics.

7. (Currently Amended). The apparatus of claim 2, further comprising a second ~~DAC~~ digital to analog converter.

8. (Currently Amended). The apparatus of claim ~~[[2]]~~ 4, wherein the memory comprises an impulse response of a first filter and an impulse response of a second filter, and the programmable convolver is programmed with one of the impulse response of the first filter and the impulse response of the second filter according to the modulated signal characteristics.

9. (Original) The apparatus of claim 4, wherein the programmable convolver is a complex programmable convolver.

10. (Original) The apparatus of claim 4, wherein the filter is a programmable convolver having an analog output.

11. (Currently Amended). An apparatus comprising:

a multi-mode receiver to receive signals of two communication systems, wherein the receiver is adapted to switch between baseband demodulation modes by programming a baseband module ~~according to characteristics of~~ based on wireless communication system type information included in a received signal; and

a memory to store a first impulse response and a second impulse response to program a filter of the baseband module.

12. (Currently Amended). The apparatus of claim 11, wherein the baseband module comprises:

an in-phase (I) channel to filter an I signal of ~~a modulated~~ the received signal

and a quadrature (Q) channel to filter a Q signal of the ~~modulated~~ received signal.

13. (Original). The apparatus of claim 12, wherein the I channel comprises:

a first filter having a programmable frequency response, operably coupled to an input of a buffer; and

a second filter having a programmable frequency response, operably coupled to an output of the buffer and to an input of a programmable convolver.

14. (Original) The apparatus of claim 13, wherein the I channel further comprises:

digital to analog converters (DACs) operably coupled to the programmable convolver, wherein the DACs comprise an adjustable sampling rate and an adjustable resolution.

15. (Original). The apparatus of claim 14, wherein the I channel further comprises:

an automatic gain control operably coupled to the programmable convolver to control a signal level of the programmable convolver and to provide an average amplitude level at the programmable convolver output.

16. (Original). The apparatus of claim 12, wherein the Q channel comprises:

a first filter having a programmable frequency response, operably coupled to an input of a buffer; and

a second filter having a programmable frequency response, operably coupled to an output of the buffer and to an input of a programmable convolver.

17. (Original). The apparatus of claim 16, wherein the Q channel further comprises:

digital to analog converters (DACs) operably coupled to the programmable convolver, wherein the DACs comprise an adjustable sampling rate and an adjustable resolution.

18. (Original). The apparatus of claim 17, wherein the Q channel comprises:

an automatic gain control operably coupled to the programmable convolver to control a signal level of the programmable convolver and to provide an average amplitude level at the programmable convolver output.

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19. (Original). The apparatus of claim 12, wherein the multi-mode receiver is a direct conversation multi-mode receiver.

20. (Original). The apparatus of claim 12, wherein the I channel and the Q channel comprise programmable complex convolvers.

21. (Original). The apparatus of claim 13, wherein the first filter and the second filter are programmable convolvers.

22. (Original). The apparatus of claim 16, wherein the first filter and the second filter are programmable convolvers.

23. (Currently Amended). A method of selecting a mode of a multi-mode receiver comprising:

programming a programmable convolver with an impulse response of a filter  
based on wireless communication system type information included in a received  
signal.

24. (Original). The method of claim 23, further comprising:

setting a frequency response of a filter by modifying the structure of the filter  
and setting the number of poles of the filter.

25. (Original). The method of claim 24, further comprising:

setting a sampling rate and a resolution to a digital to analog converter to  
switch between receiving modes of the multi-mode receiver.

26. (Original) The method of claim 25, further comprising:

setting a length of the impulse response according to a received signal  
characteristic.

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27. (Original). The method of claim 26, further comprising:

providing a combined analog and digital gain control to control a signal level  
of the programmable convolver.